

# 15th International Symposium of Aquatic Plants - 2018

## Sunday 18 February

- 12.00 Registrations open  
5.00 Welcome reception, Rydges Hotel

## Monday 19 February

- 7.45 Registrations open  
8.40 Mihi whakatau  
Welcome/housekeeping  
9.00 **PLENARY ADDRESS**  
New Zealand's fresh waters: aquatic plants and ecosystem health – lessons and directions  
*Dr Clive Howard-Williams and Dr John Clayton, NIWA, New Zealand*  
9.45 **KEYNOTE ADDRESS**  
What genetic variation can tell us about aquatic plant diversity, invasions, and management  
*Dr Ryan Thum, Research Professor, Montana State University, USA*

10.30 *Morning tea*

### **BIODIVERSITY, CONSERVATION AND BIOMONITORING** **Session 1: Threats to aquatic plant biodiversity** **Chair: Dr Tobias Bickel**

- 11.00 Genetic connectivity and dispersal distances in aquatic plants  
*Prof Ludwig Triest, Vrije Universiteit Brussel, Belgium*  
11.30 The response of macrophyte species traits to environmental factors in Fennoscandian lakes  
*Dr Janne Alahuhta, University of Oulu, Finland*  
11.45 The dangers of being a small, oligotrophic and light demanding freshwater plant across spatial and historical eutrophication gradients  
*Lars Baastrup-Spohr, University of Copenhagen, Denmark*  
12.00 Aquatic and wetland pest plants and their management on the West Coast of the South Island, New Zealand  
*Tom Belton, Department of Conservation, New Zealand*  
12.15 Long-term effects of liming in boreal softwater lakes: effects on sediment chemistry, water quality and vegetation  
*Dr Esther Lucassen, Radboud University, Nijmegen (B-WARE Research centre), The Netherlands*  
12.30 Charophytes, climate change and agricultural intensification  
*Dr Michelle Casanova, Water Research Network, Federation University, Australia*

12.45 *Lunch*

### **BIODIVERSITY, CONSERVATION AND BIOMONITORING** **Session 2: Conservation of aquatic and wetland vegetation** **Chair: Mary de Winton**

- 1.45 Circumpolar analysis of lake macrophyte communities for setting the baseline for future assessment  
*Dr Seppo Hellsten, Finnish Environment Institute, SYKE, Finland*  
2.00 What triggered the decline in diversity of emergent aquatic plants in the Upper Lough Erne area?  
*Prof Nigel Willby, University of Stirling Scotland, UK (presenting for Dr Ambrose Baker)*  
2.15 Response of macrophyte species turnover to habitat connectivity at the catchment scale in northern UK lakes  
*Junyao Sun, Wuhan Botanical Garden, Chinese Academy of Sciences, China*  
2.30 Phenology of *Zizania texana*, an endangered aquatic macrophyte in the United States, under different water velocities.  
*Dr Jeffrey Hutchinson, University of Texas at San Antonio, USA*

- 2.45 Effects of rising temperature and nutrient enrichment on quality and palatability of a submerged macrophyte  
*Peiyu Zhang, Netherlands Institute of Ecology, The Netherlands*
- 3.00 Aquatic plants as indicators of ecological quality, are they good indicators of eutrophication?  
*Prof Geoff Phillips, University of Stirling, UK*

3.15 *Afternoon tea*

### **BIODIVERSITY, CONSERVATION AND BIOMONITORING**

#### **Session 3: Assessment and ecological condition**

**Chair: Prof Teresa Ferreira**

- 3.45 Cost-Efficient remote sensing with drones for monitoring of aquatic plant distribution on wetlands  
*Dr Henri Vanhanen, Natural Resources Institute Finland (Luke), Finland*
- 4.00 Assessment of quality of three marine benthic habitat types in northern Baltic Sea  
*Dr Kaire Torn, Estonian Marine Institute, University of Tartu, Estonia*
- 4.15 The Portuguese IBMR platform: a tool for macrophyte-based monitoring and research  
*Teresa Ferreira, Centro de Estudos Florestais, Instituto Superior de Agronomia, Universidade de Lisboa, Portugal*
- 4.30 Speaking sessions end
- 6.00 Poster Reception Evening, Rydges Hotel

## Tuesday 20 February

8.25 Welcome/housekeeping

8.30 **KEYNOTE ADDRESS**

Biological and social impacts of invasive aquatic weeds at Lake Tahoe: perceptions vs. Reality  
*Dr Lars Anderson, Waterweed Solutions, USA*

**MANAGEMENT AND INVASIVE PLANTS**

**Session 4: Biology, impacts and risk assessments**

**Chair: Paul Champion**

9.15 Vegetative regeneration of invasive *Ludwigia cytotypes* from clonal bud banks across resource gradients: colonizing diploid outperforms polyploid  
*Dr. Rebecca Drenovsky, John Carroll University, USA (presenting for Brenda Grewell)*

9.30 The role of plant fragments for the dispersal of native and invasive alien aquatic plants in running waters  
*Patrick Heidbuechel, Heinrich Heine University, Duesseldorf, Germany*

9.45 Monoecious hydrilla: growth and carbohydrate dynamics in the absence of photosynthesis  
*Erika Haug, North Carolina State University, USA*

10.00 Mechanisms of invasion resistance of aquatic plant communities  
*Antonella Petruzzella, Netherlands Institute of Ecology, The Netherlands*

10.15 *Morning tea*

**MANAGEMENT AND INVASIVE PLANTS**

**Session 4: Biology, impacts and risk assessments (cont'd)**

**Chair: Paul Champion**

10.45 Investigations on expansion and risk of a novel neurotoxic cyanobacteria co-invading on submerged aquatic plants  
*Dr Susan Wilde, University of Georgia, USA*

11.00 Removal of alien plants: any effects on native macrophyte recovery and pollinator services?  
*Dr Iris Stiers, Vrije Universiteit, Brussel, Belgium*

11.15 Risk assessment of four aquatic species under the new European invasive species Regulation: challenges and data gaps  
*Dr Johan van Valkenburg, National Plant Protection Organization, The Netherlands*

11.30 Competition success of *Limncharis flava*, *Monochoria vaginalis* and *Ipomea aquatica* in nutrient rich water  
*Dr Champika Ellawala, Kankanamge University of Ruhuna, Sri Lanka*

**PRE-FIELDTRIP TALKS**

11.45 Aquatic weed control – from research to operations  
*Mary de Winton, NIWA, New Zealand*

12.00 Eye spy, something beginning with Lagarosiphon – the situation on aquatic weeds in Central Otago  
*Marcus Girvan, Boffa Miskell, New Zealand*

12.15 *Lunch*

**MANAGEMENT AND INVASIVE PLANTS**

**Session 5: Aquatic nuisance plant monitoring techniques, surveillance and detection**

**Chair: Dr John D. Madsen**

1.15 Quantitative techniques for assessing changes in distribution and abundance of aquatic plants after management  
*Dr John Madsen, US Department of Agriculture, Agricultural Research Service, USA*

1.30 Improving aquatic plant management in the California Sacramento-San Joaquin Delta  
*Dr David Bubenheim, NASA Ames Research Center, USA*

1.45 Increasing the odds of detection - aquatic weed surveillance in New Zealand  
*Tracey Burton, NIWA, New Zealand*

- 2.00 Detection of aquatic plant species using Unmanned Aerial Systems technology  
*Gray Turnage, Mississippi State University, USA*
- 2.15 Potential methods for detecting, mapping, and quantifying macrophytes using novel remote sensing technologies  
*Andrew Howell, North Carolina State University, USA*
- 2.30 Calibration and Validation of EcoSat: A new BioBase product using high-resolution satellite imagery for the detection and mapping of emergent and surface growing aquatic plants  
*Ray Valley, C-MAP USA, Inc. Minneapolis, USA*

2.45 *Afternoon tea*

#### **MANAGEMENT AND INVASIVE PLANTS**

##### **Session 6: Improving control methods of invasive plants**

**Chair: Dr Rob Richardson**

- 3.15 Integrating herbicides and triploid grass carp for monoecious hydrilla management  
*Dr Robert Richardson, North Carolina State University, USA*
- 3.30 Control of *Cabomba caroliniana* with flumioxazin: control efficacy and the effect of environmental factors  
*Dr Tobias Bickel, Department of Agriculture and Fisheries, Australia*
- 3.45 Endothall case study evaluations for Eurasian watermilfoil, hybrid watermilfoil and curlyleaf pondweed  
*Dr Cody Gray, UPI, USA*
- 4.00 Managing Delta arrowhead in South Africa  
*Dr Grant Martin, Center for Biological control, Rhodes University, South Africa*
- 4.15 Does enemy release explain the invasion success of *Sagittaria platyphylla* in Australia and South Africa?  
*Dr Raelene Kwong, Agriculture Victoria, Department of Economic Development, Jobs, Transport and Resources, Australia*
- 4.30 Predicting the realised host range of a biocontrol agent imported from USA to control *Sagittaria platyphylla* in south-eastern Australian aquatic environments  
*Jackie Steel, Agriculture Victoria, Department of Economic Development, Jobs, Transport and Resources, Australia*
- 4.45 Speaking sessions end  
  
Fieldtrip Announcements

## **Wednesday 21 February**

Full day fieldtrip followed by Conference Dinner at **Skyline Restaurant and Gondola**, Queenstown.

# Thursday 22 February

8.40 Welcome/housekeeping

## **MANAGEMENT AND INVASIVE PLANTS**

### **Session 6: Improving control methods of invasive plants (cont'd)**

**Chair: Dr Tony Dugdale**

- 8.45 Mesocosm and field evaluations of PROCELLACOR - a new herbicide for selective control of invasive aquatic plants  
*Dr Mark Heilman, SePRO Corporation, USA*
- 9.00 Understanding microbial decay and molecular transformation of the herbicide endothall, in addition to the impact of water movement, to better predict its efficacy against submersed weeds  
*Dr Tony Dugdale, Agriculture Victoria Research, Australia*
- 9.15 Optimising the management of aquatic *Alternanthera philoxeroides* (Mart.) Griseb. (alligator weed) targeted for eradication from catchments and waterways  
*Daniel Clements, Agriculture Victoria Research, Australia*
- 9.30 Aquatic weed risk assessment  
*Paul Champion, NIWA, New Zealand*
- 9.45 The Center for Aquatic and Invasive Plants: A model for integrated research and outreach  
*Dr Jason Ferrell, University of Florida, USA*

10.00 *Morning tea*

## **KEYNOTE ADDRESS**

- 10.30 Ecosystem restoration of shallow lakes in tropical and subtropical China: overcoming the negative resilience of the turbid states  
*Prof Zhengwen Liu, Nanjing Institute of Geography and Limnology, Chinese Academy of Sciences*

## **ECOSYSTEM RESPONSE AND RESTORATION**

### **Session 7: Stress ecology in the context of variable resource availability**

**Chair: Prof Elisabeth Gross**

- 11.15 How are different stress factors affecting plant quality? Insights from *Myriophyllum spicatum*  
*Prof Elisabeth M. Gross, LIEC - Univ Lorraine, France*
- 11.30 The effects of salt and light stress on growth of *Stuckenia pectinata*: constraints on re-establishment in a degraded coastal lake  
*Qian Hu, University of Canterbury, New Zealand*
- 11.45 Intraspecific variation in the sensitivity of two macrophyte species to copper contamination  
*Eva Roubeau Dumont, Paul Sabatier University, France*
- 12.00 Drivers for belowground dynamics in macrophyte communities under environmental changes  
*Dr Arie Vonk, University of Amsterdam, The Netherlands*

12.15 *Lunch*

## **ECOSYSTEM RESPONSE AND RESTORATION**

### **Session 8: Environmental change – climate change**

**Chair: Dr Liesbeth Bakker**

- 1.15 The impact of herbivores on carbon stocks and carbon cycling in aquatic vegetation  
*Dr Liesbeth Bakker, Netherlands Institute of Ecology, The Netherlands*
- 1.30 Carbon limitation in aquatic macrophytes overlooked  
*Prof Jan Roelofs, Radboud University Nijmegen (Research Centre B-WARE), The Netherlands*
- 1.45 The biocontrol of *Egeria densa* Planchon (Hydrocharitaceae) in South Africa and the effect of climate change on the success of the programme.  
*Rosali Smith, Rhodes University, Department of Entomology, South Africa*
- 2.00 Effects of global change CO<sub>2</sub> scenarios on the growth and physiology of submerged aquatic plants  
*Dr Julie Coetzee, Rhodes University, South Africa*
- 2.15 Manipulating the environment to control invasive alien plants within riparian habitats  
*Dr Zarah Pattison, University of Stirling, UK*

**ECOSYSTEM RESPONSE AND RESTORATION**

**Session 9: Macrophytes in flowing water**

**Chair: Dr Fleur Matheson and Dr Tenna Riis**

- 3.00 The role of macrophyte habitats for stream ecosystem functioning  
*Dr Tenna Riis, Aarhus University, Denmark*
- 3.15 Feedback effects of submersed macrophytes on water level, nutrient retention and turbidity in a lowland river  
*Dr Jan Koehler, Leibniz Institute of Freshwater Ecology and Inland Fisheries, Germany*
- 3.30 Hidden defences against drag forces: two newly discovered micro-level adaptations of macrophytes to deal with hydrodynamic stress.  
*Dr Jonas Schoelynck, University of Antwerpen, Ecosystem Management Research Group, Belgium*
- 3.45 Impact of supply of water alongside the riverbed on the development of the populations of various Water Crowfoots  
*Prof Krzysztof Szoszkiewicz, Poznan University of Life Sciences, Department of Ecology and Environmental Protection, Poland*
- 4.00 Impact of hydromorphological alterations on macrophyte diversity  
*Dr Daniel Gebler, Department of Ecology and Environmental Protection, Poznan University of Life Sciences, Poland*
- 4.15 The concentration of a reactive oxygen species, H<sub>2</sub>O<sub>2</sub>, as an indicator of total environmental stress and biomass of submerged macrophytes in the lowland stream  
*Prof Takashi Asaeda, Saitama University, Japan*
- 4.30 Speaking sessions end

## Friday 23 February

8.25 Welcome/housekeeping

**ECOSYSTEM RESPONSE AND RESTORATION**  
**Session 10: Biotic interactions and ecological thresholds**  
**Chair: Dr Sabine Hilt**

8.30 The importance of macrophyte growth form diversity for microbial mediated nitrogen (N) cycling in freshwater ecosystems

*Maidul I. Choudhury, Swedish University of Agricultural Sciences, Sweden*

8.45 Allelopathic interactions between cyanobacteria and macrophytes: state of the art and potential application in lake restoration

*Dr Runbing Xu, Yunnan University, China*

9.00 Effects of emergent macrophytes on the phytoplankton community of a tropical reservoir: a mesocosm study

*Yiluan Song, National University of Singapore, Singapore*

9.15 How green is my river - revisited 10 years on

*Dr. Matthew O'Hare, Centre for Ecology and Hydrology, Edinburgh, UK*

9.30 The contrasting responses of periphyton to different nitrogen (ammonia and nitrate) loadings and dominated macrophyte species in a mesocosm study

*Dr Yu Cao, Wuhan Botanical Garden, China*

9.45 Shifting the ecological balance in urban waters by feeding the ducks

*Sven Teurlincx, NIOO-KNAW (Netherlands Institute of Ecology), The Netherlands*

10.00 The winner takes it all: groundwater discharge can give periphyton a competitive advantage over macrophytes

*Dr Sabine Hilt, Leibniz-Institute of Freshwater Ecology and Inland Fisheries, Berlin, Germany*

10.15 *Morning tea*

**ECOSYSTEM RESPONSE AND RESTORATION**  
**Session 11: Restoration and resilience of aquatic ecosystems**  
**Chair: Dr Julie Coetzee**

10.45 Plant species richness as a stabilising property of shallow lakes

*Prof Nigel Willby, University of Stirling, Scotland, UK*

11.00 Quantifying ecosystem benefits of biological control of invasive aquatic weeds in southern Africa

*Samuel Motitsoe, Rhodes University, South Africa*

11.15 Inducing a shift from turbid to clear water state using a novel combination of aquatic macrophytes: a tropical mesocosm study

*Darren Sim, National University of Singapore, Freshwater and Invasion Biology Laboratory, Singapore*

11.30 Natural restoration of aquatic vegetation in degraded lakes: from theory to practice

*Dr Wei Li, Laboratory of Aquatic Plant Biology, Wuhan Botanical Garden, Chinese Academy of Sciences, China*

11.45 A multi-facted study exploring non-linear restoration of invaded freshwater systems.

*Dr Julie Coetzee (presenting on behalf of Dr Emily Strange, Rhodes University, South Africa)*

12.00 Identifying critical nutrient loads and mowing strategies that balance between maintaining a good water quality and avoiding nuisance by submerged macrophytes in shallow lake ecosystems

*Sven Teurlincx, NIOO-KNAW (Netherlands Institute of Ecology), The Netherlands (presenting for Wolf Mooij)*

12.15 Assessing aquatic macrophyte growth responses to the phosphorus binding product lanthanum-bentonite modified clay (Phoslock): a lake restoration tool

*Kate Waters, Centre for Ecology & Hydrology, UK*

12.30 Closing Remarks

Announcements International Scientific Committee

1.00 *Lunch*